It Just Didn't Look Right

By GySgt. Bryan Spiritus

A CH-46E crew chief's carefully trained eye and an avionics technician's knowledge of the MIMs prevented a serious gripe from becoming an in-flight fire. It doesn't take much to imagine what would have happened to the crew and to the helo had that fire happened at altitude. But we don't have to think about what could have been, because of the attention to detail given by two experts.

One day while doing a preflight for a post-maintenance, functional check flight (FCF), Sgt. Seth Court noticed a one-third-inch-diameter burn hole in the cover of the AC and DC section of the No. 2 mainline generator. He compared the hole to the No. 1 generator but found no damage. He immediately wrote a downing MAF and went to the avionics shop to explain what he had found. He told everyone, "Not sure what caused it, but it just doesn't look right."

Corporal Christopher Pierce, an avionics technician and a CDI in training, examined the generator and immediately researched the section in the A1-H46AE-420-000 manual about equipment hidden under the cover.

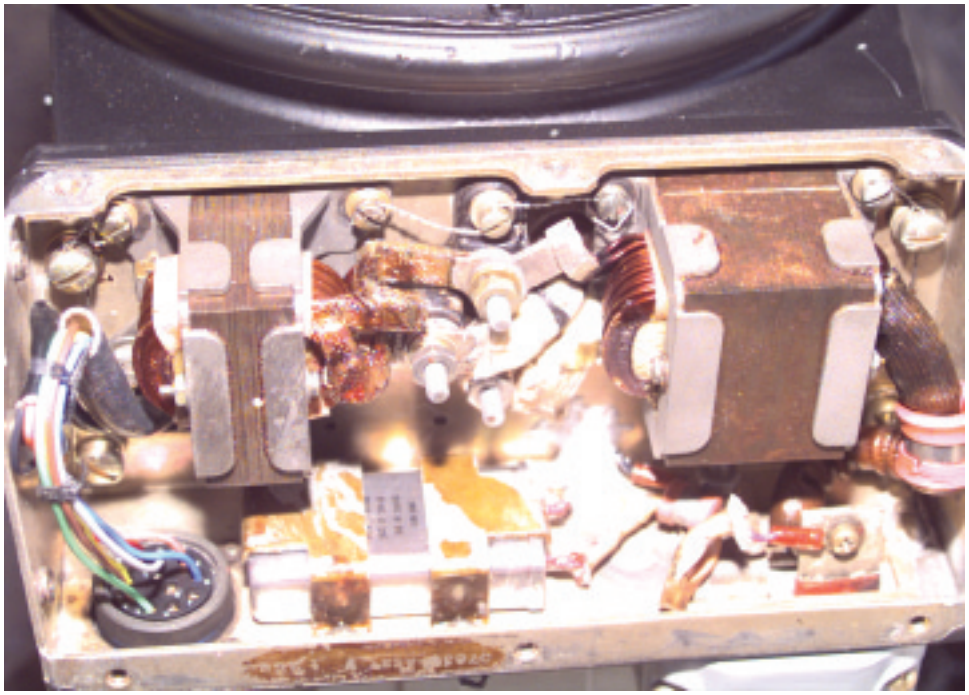
He was satisfied with his research but still spoke with Marines in the IMA electrical shop and with local tech reps. He then removed the damaged cover, only to have a gold-colored, cylinder-shaped object fall onto the deck, along with what appeared to be two brackets. The area around the broken brackets was covered with black transmission fluid and hydraulic fluid. Several other gold-colored components showed obvious signs of arcing. Corporal Pierce then removed the cover from the No. 1 generator to compare it with the other side.

A lengthy investigation found the gold-colored, cylinder-shaped object was a capacitor (originally silver) that had snapped off its brackets. After breaking, it had shorted across the AC and DC terminals, creating an arc hot enough to burn a hole through the cover. The capacitor's color changed to gold because of the extreme heat caused by the arcing.

The QA division initiated an engineering investigation, and the generator was removed and replaced without further incident.

In 1996, a sister squadron had a similar incident when hydraulic fluid entered the mainline AC and DC generator of a different CH-46E. That leak entered the

An electrical short can behave like an arc welder, causing this type of damage and turning silver to gold.



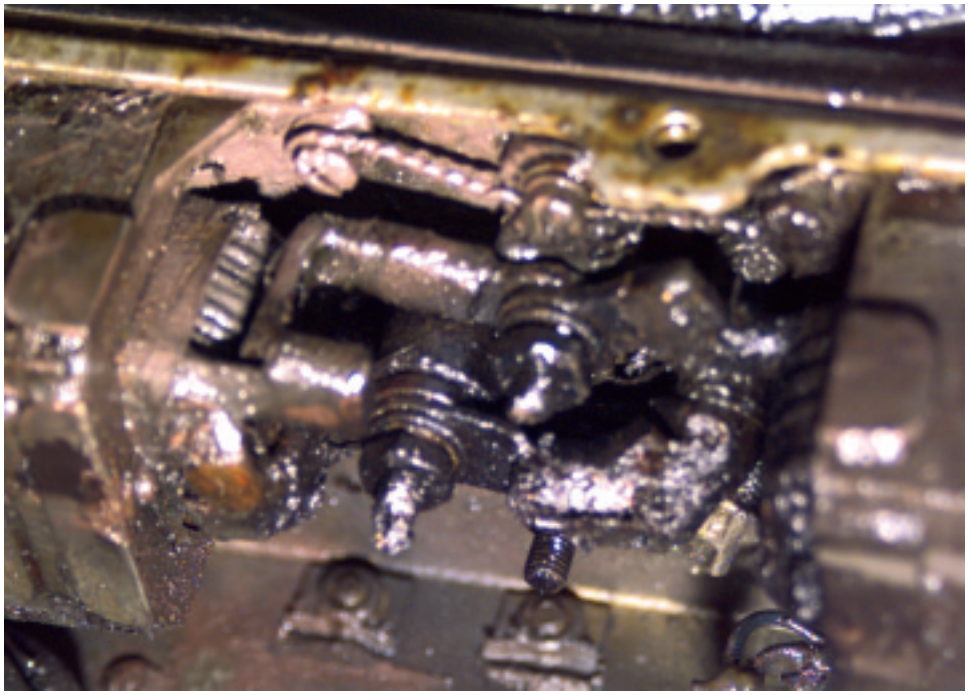
The AC and DC section of a mainline generator should look pristine.

generators through a screen in the bottom section of the unit, causing a fire that destroyed the aircraft. Luckily, no one was hurt.

Most of the time, maintainers are called to do maintenance on a clear-cut discrepancy, but we sometimes have gripes that are outside our rating specialty or MOS. Because we don't wear blinders, our inexperience with a system often alerts us to something that just isn't right. It forces us to do research, to ask questions, and to seek outside help.

A question on the CSEC checklist specifically addresses using outside technical assistance. It is not a sign of weakness or a lack of technical proficiency to admit we don't know it all. When you find something out of the ordinary, notify Maintenance Control and the workcenter. Make sure you use all resources at your disposal to identify the problem and to repair the aircraft or component. As a crew chief and father of four, I really would appreciate it and know every pilot or aircrewman would, too.

GySgt. Spiritus is the avionics workcenter supervisor at HMM-264.



It took a lot of power to char this section and to weld a hole in the cover.